

# **Species of Vascular Plants Observed on the Lathrop Tract, Bay County, Florida.**

Submitted to:

U.S. Department of the Interior, Bureau of Land Management  
Jackson District Office  
Jackson, Mississippi

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June 24, 2002

## Introduction and Purpose

The purpose of this report is to convey the results of a two day survey for listed species of vascular plants on the Bureau of Land Management's (BLM) Lathrop Tract located on Raffield Island in East Bay, Bay County, Florida. The BLM report (1995) provides the location and information regarding the Lathrop Tract. The tract encompasses about 187 acres consisting of three areas of uplands (mesic to wet pine flatwoods) surrounded by salt marsh (intertidal and supratidal marsh). The largest area of uplands is the subject of this report. The two small pine islands to the southeast were not investigated.

**Soils:** The soil types on the tract according to Duffee et al. (1984) are Leon Sand, Osier Fine Sand, and Bayvi Loamy Sand (Appendix 1). Leon Sand is poorly drained, nearly level soil with a slope of from 0 to 2%. The water table is within 10 inches of the surface for 1 to 4 months of the year, and at a depth of 10 to 40 inches for about 9 months in most years. The mesic flatwoods at the Lathrop Tract are located on this soil type. Osier Fine Sand is a poorly drained, nearly level soil in low-lying areas. Slopes are concave to smooth with a slope from 0 to 2%. The water table is within a depth of 10 inches from the surface from 3-6 months each year. Most depressional areas are ponded for 2 to 4 months each year. The wet pine flatwoods are located on this soil type. Bayvi Loamy Sand is a level or nearly level, very poorly drained soil. The water table is at a depth of less than 10 inches, and is ponded from 6 to 12 months each year. This soil is subject to tidal action, and the intertidal and supratidal salt marshes are found on this soil.

**Biotic Communities:** The intertidal marsh community is dominated by smooth cordgrass (*Spartina alterniflora*), and the supratidal marsh community is dominated by needle rush (*Juncus roemerianus*). Florida Natural Areas Inventory (FNAI) (2000) defines tidal marsh as expansive intertidal and supratidal areas occupied primarily by rooted, emergent vascular macrophytes (e.g. cordgrasses, needlerush, sawgrass, etc.). FNAI (2000) lists this biotic community as S4 or apparently secure in Florida. The south side of the largest island (Raffield Island) has a short berm vegetated primarily with saltwater false willow (*Baccharis angustifolius*), saltmeadow cordgrass (*Spartina patens*), and needle rush. The landward edge of the supratidal marsh is dominated by sawgrass (*Cladium jamaicense*).

The wet flatwoods is dominated by an open canopy of longleaf pine (*Pinus palustris*) with some slash pine (*Pinus elliotii*). The dominant shrubs present are species of St. John's-wort, the many stemmed bog tupelo (*Nyssa ursina*), corkwood (*Stillingia aquatica*), evergreen bayberry (*Myrica heterophylla*), and scattered areas of Titi (*Cyrilla racemosa*). The herbaceous layer is dominated by wiregrass (*Aristida stricta* = *beyrichiana*) with a number of species of sedges, rushes, and other herbs and forbs. Circular depressions within the wet flatwoods support dense stands of sawgrass. FNAI lists this biotic community as S4? or apparently secure in Florida but may be rare in some areas.

The mesic pine flatwoods are dominated by abundant large, longleaf and slash pines. The dominant shrubs are saw palmetto (*Serenoa repens*), yaupon (*Ilex vomitoria*), gallberry (*Ilex glabra*), and blueberry (*Vaccinium* spp.). Only in small depressions and open areas free of shrubs is there a herbaceous layer with wiregrass, rushes, sedges, and other herbs. FNAI lists

this biotic community as S4 or apparently secure in Florida.

## Methods

Two lines of survey were determined using aerial photography that included various areas within the wet flatwood and mesic flatwood communities. Figure 1 and Figure 2 show the lines. A few locations at which listed species were located along each line are included in the figures. The beginning point for both lines was fixed with an metal stake and a tagged tree. A Garmin Etrex Legend geographical positioning device was used to determine locations during the survey. The accuracy for each reading is provided. Plants were identified in the field and some specimens were taken for identification later. These specimens will be deposited in the St. Andrew Bay Environmental Study Team (BEST) herbarium that is housed at the U.S. Fish and Wildlife Service office in Panama City, Florida.

The beginning point for both survey lines is located at 30°02.056' N and 85°26.108'W. The triangular transect was placed to cross the flatwoods along the southern end of the tract, then headed northward along the edge of the more open canopy area and the denser area, and then into the sparse canopy area of the tract. The eastward leg of the triangular line of survey ended at 30°02.047'N and 85°25.652'W. This also served as the beginning point for the north leg of the triangle. The north leg ended and the return (southeast leg) began at 30°02.231'N and 85°25.604'W and returned to the beginning point. The triangle is approximately 1.245 miles long. The second line was about 3900 feet long and headed northeast from the beginning point of the first transect through medium dense and then dense stands of pine and saw palmetto and ended at 30°02.550'N and 85°25.683'W.

Each line was walked in as straight a line as possible by two people and observations for listed plants that were within about ten feet on either side of the line were made. Locations of listed species observed were recorded, and the number of specimens within a radius of about 20 feet were counted. *Macbridia alba* (white birds-in-a-nest) was observed adjacent to the transect, but their observations are included here. It became obvious that Chapman's crownbeard (*Verbesina chapmanii*) was so abundant and evenly distributed that counts were made between two points. The specific locations of the other species observed were recorded for each group.

## Results and Discussion

The Lathrop Tract has been visited by the writer a few times since 1997. During each visit the species of vascular plants observed were recorded and a number of specimens of species from the tract were placed in the BEST herbarium. Table 1 is a list of the species of vascular plants that have been observed on the Lathrop Tract over the years. The list contains 127 species in 79 genera in 43 families. The families and common names are from Wunderlin (1997). The designations of the listed plants are from FNAI (2000) and Coile (2000). The state and federal designations are; **LE** = endangered, **LT** = threatened. Additional FNAI designations are: **S1** = critically imperiled in Florida and globally because of extreme rarity or extreme vulnerability to extinction due to some natural or human factor, **S2** = Imperiled in Florida and globally because

of rarity or extreme vulnerability to extinction due to some natural or human factor, **S3** = Either very rare or local throughout its range, or found locally in a restricted area, or vulnerable to extinction from other factors on a state and global basis. The wetland designations are from Reed (1988) where obl = obligate wetland species: occur almost always in wetlands under natural conditions (estimated probability >99%), facw = facultative wetland species: usually occur in wetlands but are occasionally found in non-wetlands (estimated probability 67-99%), fac = facultative species: are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%), facu = facultative upland species: usually occur in non-wetlands but occasionally found in wetlands (estimated probability 1-33%). The + and - refine the indicator.

### Listed Plant Species

Stein et al. (2000) synthesized the data on biodiversity in the United States and identified six areas of high biodiversity referred to as “hotspots”. One of these “hotspots” is in the Florida Panhandle centered on the Apalachicola River basin. Bay County and the Lathrop Tract are located just west of the “hotspot” center and share in this designation. One of the criteria for being a “hotspot” of biodiversity is the number of endemic, rare, or listed plants in the area. Listed species are those that are protected by the State of Florida and/or the federal government or are listed by FNAI as species of concern in Florida.

The Lathrop Tract is known to support nine species of vascular plants that are listed, one species that is endemic to the area but not listed due to its abundance on public land, and one species, royal fern (*Osmunda regalis*), that is listed by the State of Florida as Commercially Exploited. One species of yelloweyed grass and one variety of a species of yelloweyed grass may be present on the site. In addition, other listed species such as *Cuphea aspera* (Florida waxweed), *Gentiana pennelliana* (wiregrass gentian) and others that are known to occupy the habitats similar to those on the Lathrop Tract may also be present.

Table 2 provides the locations for the listed species observed during this survey. Chapman’s crownbeard (*Verbesina chapmanii*) was generally distributed throughout the wet areas with an open canopy. The total number of specimens of this species counted along the survey lines was 796. Godfrey’s false dragonhead (*Physostegia godfreyi*) was observed in three locations with a total of 13 individuals found. The total number of white birds-in-a-nest (*Macbridea alba*) was 17 found in three populations. The total number of bog tupelo (*Nyssa ursina*) counted along the survey line was 15. The bog tupelo was most abundant along the edge of depressions in the wet pine flatwoods. The following is a summary of range, habitat, and management suggestions from the literature.

***Pinguicula ionatha*** Godfrey (Godfrey’s Butterwort). Family Lentibulariaceae (Bladderwort Family). Chafin (2000) summarized the information pertaining to Godfrey’s butterwort. This species is endemic to five counties in the Florida Panhandle including Bay County. It flowers from March through April, inhabits seepage slopes, bogs, depressions in wet pine flatwoods, wet prairies, roadside ditches, and transition zones between wet pine flatwoods and cypress areas. Chafin (2000) recommended management include prescribed growing season burns every 2 to 3

years; avoid rutting and compacting wetland soils, herbicides along roadsides, and placing fire breaks in wetland ecotones. Kral (1883) stated that this species is a species of sunlight and of high hydroperiod. Acidic. Bog soils. Activities that would encourage its increase include fire, or other activities that would reduce competing ground cover without disturbing the substrate. Drainage of habitat should be avoided.

This species was observed during a field trip in April of 1997. This was two years after Hurricane Opal had inundated the area and the clumps of wiregrass were not as thick or as high as they are currently. At that time this species was observed in the open spaces between the clumps of wiregrass. Currently, the wiregrass is knee deep in most places, and the clumps of wiregrass have shaded the spaces between them.

***Oxypolis greenmanii*** Math. & Const. (Giant Water Cowbane). Family Apiaceae (Carrot Family). Godfrey and Wooten (1981) provided information regarding Giant Water Cowbane. It is locally abundant usually in water in depressions in pine flatwoods, cypress ponds, drainage canals and ditches. It is endemic to Bay, Calhoun, and Gulf Counties, Florida. Kral (1983) stated it blooms from July through August and Coile (2000) stated that it blooms from July through September. Kral (1983) stated that this is a species of high hydroperiod soils, its commonest associates are various species of *Hypericum* and *Stillingia aquatica*. Species of *Hypericum* (St. Johns-worts) are abundant on Lathrop as is *Stillingia aquatica* (corkwood). The corkwood forms dense forests of plants 5-6 feet tall at places on Lathrop that are edged by bog tupelo. Kral (1983) stated that *O. greenmanii* is a species of clearings in wetlands, and site preparation involving drainage would eliminate the species. This species has been observed by the writer twice on Lathrop at the east end of the first survey line and along a low wet area extending north from the east end of the survey line.

***Macbridea alba*** Chapm. (White birds-in-a-nest). Family Lamiaceae (Mint Family). Godfrey and Wooten (1981) stated that this species is endemic to the lower Apalachicola River region where it inhabits pine savannahs and flatwoods. Kral (1983) stated that the species occupies sandy peats of savannah-bogs in pine flatwoods of northwestern Florida. Coile (2000) lists its range in Florida as Bay, Gulf, and Liberty Counties. Chafin (2000) stated that this species inhabits wet to mesic pine flatwoods and associated roadsides and is endemic to the Florida Panhandle. Chafin (2000) recommended burning of flatwoods habitat every 2 to 3 years. She recommends avoiding converting habitat of this species to pine plantation and avoiding mechanical site preparation. Kral (1983) stated that its habitat is typically created by flatwoods fires. Drainage should be avoided as should mechanical preparation and closure of the canopy by bedded pines. This species flowers during June and July.

***Physostegia godfreyi*** Cantino (Godfrey's False Dragonhead). Family Lamiaceae (Mint Family). Godfrey and Wooten (1981) stated that this species inhabits bogs, wet pine flatwoods and savannahs, and adjacent ditches. It is often found in shallow water. It is endemic to the Florida Panhandle and is found in Liberty, Franklin, Gulf, and Bay Counties. Coile added Walton and Wakulla Counties to the range. Management recommendations were not located, but probably coincide with those for the species mentioned above. It blooms during the summer months.

***Scutellaria floridana*** Chapman (Florida Skullcap). Lamiaceae (Mint Family). Chafin (2000) stated that this species inhabits wet pine flatwoods, grassy margins of cypress areas, seepage slopes, and transition zones between flatwoods and wetlands. It is endemic to the Apalachicola River lowlands in the Florida Panhandle. Kral (1983) and Coile (2000) stated that this species inhabits pine-palmetto flatwoods, savannahs, flatwoods, and grassy openings in Franklin, Liberty, and Gulf Counties, Florida. It was observed in 1997 in Bay County on Lathrop (specimen in BEST herbarium) and in 2001 on Lathrop during a trip with Dr. Ann Johnson of FNAI. Chafin (2000) recommended that fire be applied every 2 to 3 years during the growing season, and that soil disturbance or alteration of hydrology be avoided. Kral (1983) stated that the habitat of this species is maintained by periodic burns. Alteration of the habitat by mechanical means or alteration of the hydrology should be avoided. It blooms from April through July, but the specimen observed with Dr. Johnson was in bloom in October on Lathrop.

***Verbesina chapmanii*** Coleman (Chapman's Crownbeard). Family Asteraceae (Aster Family). Godfrey and Wooten (1981) stated that this species inhabits bogs, seasonally wet pine savannahs and flatwoods, and grassy cypress depressions from Liberty and Franklin Counties, Florida westward to at least Walton County. Coile (2000) lists Bay, Franklin, Gulf, Liberty, Wakulla, Walton, and Washington Counties Florida as its range. It blooms from May through August. Management recommendations were not located.

***Coelorhachis tuberculosus*** (Nash) Nash (Florida Jointtailgrass) = *Manisuris tuberculosa*. Family Poaceae (Grass Family). Godfrey and Wooten (1979) stated that this species inhabits borders of lakes, and the range of this species includes central Florida and south Alabama. Coile (2000) stated that this species occupies marshes and margins of ponds and lists its occurrence from a number of Florida counties including the Panhandle counties of Calhoun, Santa Rosa, and Washington Counties. It flowers in Spring and summer. This species was observed previously on Lathrop and a specimen is in the BEST herbarium. The specimen was examined and the identification confirmed by Dr. Loren Anderson of Florida State University. It was observed and the specimen collected in October 1997 along a depression in the open flatwoods area of Lathrop. Management recommendations were not located.

***Linum westii*** Rogers (West's Flax). Family Linaceae (Flax Family). Chafin (2000) stated that this species inhabits wet flatwoods, depression ponds, edges of cypress swamps, and is endemic to northeast Florida and the Florida Panhandle. Coile (2000) lists this species from Baker, Calhoun, Clay, Franklin, Gulf, Jackson, and Okaloosa Counties, Florida. Chafin (2000) recommends that wet flatwoods and associated wetlands be burned every 2 to 3 years, and that placing roads and fire breaks in wetland ecotones be avoided. Alteration of the natural hydrology should be avoided. Kral (1983) stated that this species is part of the savannah-bog community that thrives in full sun or partial shade, and that this species has been maintained through periodic flatwoods fires. Management of this species requires maintenance of undrained areas and undisturbed bog soils. It flowers in spring and summer (Wunderlin, 1997); June through August, (Coile, 2000); or May through July (Chafin, 2000).

This species was observed with Dr. Ann Johnson. The writer and Dr. Johnson observed that the leaves of the specimen examined in the field on Lathrop were opposite toward the base and alternate toward the inflorescence. The specimen from Lathrop that was pressed and placed in the BEST herbarium was identified as *Linum* cf. *floridanum* (Planch.) Trel., because the lower leaves were all alternate on the mature stem. It is possible that both species occur on Lathrop, because both occupy the same type of habitat. Additional searches for this species should be undertaken.

***Xyris longisepala*** Kral (Kral's Yelloweyedgrass). Xyridaceae (Yelloweyed grass Family). Godfrey and Wooten (1981) stated that the habitat of this species is moist to wet sandy shores of limesink lakes and ponds in the Florida Panhandle and southeast Alabama. Wunderlin (1997), and Coile (2000) stated that the habitat of this species is margins of sandhill ponds. Coile (2000) listed its range as Bay, Gulf, Leon, Okaloosa, Walton, and Washington Counties, Florida. No management recommendations were located.

Because Lathrop does not appear to be a habitat type for this species, the mounted specimen of this species was re-examined and compared against the descriptions of *X. longisepala* and *Xyris smalliana* Nash in Godfrey and Wooten (1981). The identification of the specimen remains *X. longisepala* based on the lateral sepals being exerted, the keel of the lateral sepals not being jagged the entire length, and the shape and appearance of the heads and seeds. The specimen is available for examination and correction of the identification, if warranted. Additional searches for this species should be undertaken.

***Nyssa ursina*** Small (bog tupelo). Family Nyssaceae (Sourgum Family). The taxonomy of this species is confusing. FNAI (2000) listed this species as S2. Godfrey (1988) treated *N. ursina* as a synonym of *Nyssa sylvatica* variety *biflora*. He stated, occurring "in wet pinelands subject to periodic burning, having large subterranean bases and shrubby, multistemmed tops (*N. ursina* Small)." Wunderlin (1997) also treated *N. ursina* as a synonym of *N. sylvatica* variety *biflora*. The specimens identified as *N. ursina* were done so with Dr. Ann Johnson of FNAI. The specimens were all shrubby, with multistemmed tops. This species, as described above, occurs on periodically burned, wet pine flatwoods. Management recommendations were not located, but it appears that periodic burning is a part of the maintenance of this tree.

***Hypericum exile*** Adams (Florida Sands St. John's-wort). Family Clusiaceae (Mangosteen Family according to Wunderlin, 1997 or St. John's-wort Family according to Godfrey, 1988). According to Godfrey (1988) this species inhabits pine savannahs and flatwoods usually where soils remain water-saturated only for short periods, occasionally where wet for extended periods. The species is endemic to Liberty, Franklin, Gulf, Bay, and Washington Counties, Florida. It flowers from spring to summer. Management recommendations were not located. In a conversation with Dr. Loren Anderson, he stated that this species is not listed because of its abundance on the Apalachicola National Forest.

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## **APPENDIX 1. Lathrop Tract Soils Map**